UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
CUNNINGHAM, GREGORY F

ART UNIT	PAPER NUMBER
2676	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/937,563	KITSUTAKA, SHIGERU
	Examiner	Art Unit
	Gregory F. Cunningham	2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 June 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-8,19,22-26,37,40-44 and 55-60* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-8,19,22-26,37,40-44 and 55-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>06 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to communications of amendment received 6/23/2005.

2.   The disposition of the claims is as follows: claims 1, 4-8, 19, 22-26, 37, 40-44, and 55-60

are pending in the application. Claims 1, 19 and 37 are independent claims. Claims 2, 3, 9-18,

20, 21, 27-36, 38, 39 and 45-54 have been cancelled.

Claim Rejections - 35 USC § 112

3.   In view of amended claims 1, 19 and 37, 112 rejections are withdrawn.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   In view of the examiner's best understanding of the claims as presented, claims 1, 19, 37

and 55-60 are rejected under 35 U.S.C. 102(b) as being disclosed by Bollman, (US Patent

5,218,350), further in view of Udea, (US Patent 4,935,879), and further in view of GT

Interactive, "3D Realms, and Torus Games Ship 'Duke Nukem' For The Game Boy Color",

hereinafter Game Boy.

A.   Claim 1, "A game system which generates an image, comprising:

a memory which stores a program and data for image generation [col. 3, lns. 13-15; col. 3, lns. 52-66 and col. 4, lns. 39-43]; and

at least one processor which is connected to the memory and performs processing for image generation, at least one processor including [col. 3, lns. 52-66]:

an index number setting section which sets image information of an original image as an index number in a lookup table for index color texture-mapping [col. 4, lns. 4-38], the index color texture-mapping being texture-mapping which maps a texture onto a virtual object while referring to the lookup table, the index number being set to each texel of the texture in a texture space, and the texture linking to image information to be texture-mapped; and

a drawing section which transforms the image information of the original image by performing index color texture-mapping on the virtual object by using the lookup table in which the image information of the original image is set as the index number [col. 4, lns. 4-38], the virtual object being a polygon having a size equal to a size of a display screen or a size of a block obtained by dividing a display screen into blocks" is disclosed [as detailed by Bollman].

Wherein [an image originally defined in 24 bit color, is reduced to a predetermined number of colors (a color set), between 27 and 128 in number, each color indexed in an 8 bit look up table, so that each pixel is color identified with a index pointer to a color or appearance characteristic in the look up table] corresponds to "index number setting section" and [These values are then converted to chrominance/luminance space in a known chrominance/luminance transform at step 30. The position of the color set may then be varied through luminance/chrominance space to derive a new color image, with the actual rotation equations only applied to the reduced color set. Upon achieving the desired image appearance, the

luminance/chrominance rotation selected is applied to the <u>original</u> 24 bit <u>image,</u> and a new

reduced RGB color set is derived.] corresponds to "a drawing section which ...". However

Bollman's lack of texture assigning is disclosed by Ueda in col. 9, lns. 29-38 at "A color look-up

table memory 10 is provided and 2D source coordinates data for texture mapping data are

assigned therein.

In accordance with the fifth embodiment, the contents of the color look-up table memory 10

can be read out based on the 2D source coordinates data for texture mapping data uj, vj. This

enables execution of shading processing according to the color index method so that an edge

display can be made at the boundary of a figure on which an animation image is to be mapped."

Wherein 'texture assigning' corresponds to "texture setting" and wherein assigning is inherently

from original image data albeit original video image data. Udea also reveals in col. 1, lns. 18-24

at "There is known a texture mapping apparatus in which a 2D texture original figure is divided

into line segments in the scan line direction, and the line segments thus obtained are subjected to

an inverse perspective transformation for each pixel while the line segments are being scanned

on the display plane in the scan line direction" which corresponds with "transforms the image

information of the original image by performing index color texture-mapping on a virtual object

by using the lookup table".

Although Bollman does not appear to disclose "the virtual object being a polygon having a

size equal to a size of a display screen", Udea does in Fig. 7 as shown.

While Udea does not appear to disclose that the virtual object polygon has a size equal to a

size of a display screen, Game Boy discloses the size of the screen can be places in the palm of

your hand. Therefore, for example, anyone may employ a 19 inch or 21 inch desktop display

screen for viewing and displaying a virtual object polygon the entire size of a palm-held

"GameBoy" display screen.

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply indexing disclosed by Bollman in combination with texture

indexing, assigning and polygons disclosed by Ueda, and motivated to combine the teachings

because it would provide a texture mapping apparatus and method capable of executing shading

processing according to the color index method together with texture mapping processing as

revealed by Udea in col. 3, lines 9-13.

Although it was stated that Bollman does not appear to disclose "the virtual object being a

polygon having a size equal to a size of a display screen". **Bollman discloses in Fig. 3, and**

most all applications executed and displayed on computing (processor, cpu, game) systems

place a rectangular border along the perimeter of the display screen. This is generally know

as a full screen window and thus constitutes a 102 rejection to "virtual object being a polygon

having a size equal to a size of a display screen of the present display screen system".

The claim element "a size of a block obtained by dividing a display screen into blocks" has

not been ignored, but rather has not been given attention since the coordinating conjunction used

is "or", whereby demonstrating either the one preceding or the one following the coordinating

conjunction completes the proof.

(Examiner's note: "game system" of claim 1 carries no patentable weight.)

B.   Per independent claims 19 and 37, these are directed to a computer usable program and a

method, respectively, for the system of independent claim 1, and therefore are rejected to

independent claim 1.

C.   Claim 55, "The game system as defined in claim 1, wherein the image information of the

original image set as index number is perspective-transformed information" is disclosed, supra

for claim 1. However Bollman does not seem to disclose "wherein the image information of the

original image set as index number is perspective-transformed information", but Ueda does in

col. 1, lns. 18-24.

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply indexing disclosed by Bollman in combination with perspective

information disclosed by Ueda, and motivated to combine the teachings because it would provide

a texture mapping apparatus and method capable of executing shading processing according to

the color index method together with texture mapping processing as revealed by Ueda in col. 3,

lines 9-13.

D.   Claim 58, "The game system as defined in claim 1, wherein the image information of the

original image set as index number is at least one of color information, alpha value information,

and depth value information" is disclosed, supra for claim 1. Although Bollman discloses "the

original image set as index number is at least one of color information" in col. 3, ln. 67 – col. 4,

ln. 38, Bollman does not seem to disclose "wherein the image information of depth value

information", but Ueda does in col. 3, lns. 9-13; and col. 4, lns. 24-31.

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply color information disclosed by Bollman in combination with depth

information disclosed by Ueda, and motivated to combine the teachings because it would provide

a <u>texture mapping</u> apparatus and method capable of executing shading processing according to

the <u>color index</u> method together with <u>texture mapping</u> processing as revealed by Ueda in col. 3, lines 9-13.

E.   Per dependent claims 56, 59 and 57, 60, these are directed to a computer usable program and a method, respectively, for the system of dependent claims 55 and 58, and therefore are rejected to dependent claims 55 and 58.

6.   Claims 4, 5, 8, 22, 23, 26, 40, 41 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bollman and Ueda as applied to claims 1, 27 and 45 above, and further in view of Duluk, Jr. et al., (US-PAT-NO 6,597,363B1), hereafter Duluk.

A.   Claim 4, "The game system as defined in claim 1, wherein the lookup table is used to perform gamma correction, negative/positive inversion, posterization, solarization, binarization monotone filtering or sepia filtering on the image information of the original image" is disclosed by Ueda supra for claim 1. However Bollman and Ueda do not appear to disclose "wherein the lookup table is used to perform gamma correction, negative/positive inversion, posterization, solarization, binarization monotone filtering or sepia filtering on the image information of the original image", but Duluk does in col. 113, lns. 46-51.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply texture mapping disclosed by Bollman and Ueda in combination with gamma correction disclosed by Duluk, and motivated to combine the teachings because the look-up RAM act as look-up table for gamma correction as revealed by Duluk.

B.   Per dependent claims 22 and 40, these are directed to a computer usable program and a

method, respectively, for the system of dependent claim 4, and therefore are rejected to

dependent claim 4.

C.   Claim 5, "The game system as defined in claim 1, wherein one of color components of

color information in the image information of the original image is set as the index number in the

lookup table for the transformation of the color information; and wherein the game system

further comprises means which performs masking on other color components of the transformed

color information to avoid being drawn in the drawing region" is disclosed supra for claim 1.

However Bollman and Ueda do not appear to disclose "wherein one of color components of

color information in the image information of the original image is set as the index number in the

lookup table for the transformation of the color information; and wherein the game system

further comprises means which performs masking on other color components of the transformed

color information to avoid being drawn in the drawing region", but Duluk does in col. 4, lns. 18-

34.

        Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply texture mapping disclosed by Bollman and Ueda in combination

with depth using Z-buffering and LUT disclosed by Duluk, and motivated to combine the

teachings because the look-up RAM act as look-up table for Z-buffering as revealed by Duluk.

D.   Per dependent claims 23 and 41, these are directed to a computer usable program and a

method, respectively, for the system of dependent claim 5, and therefore are rejected to

dependent claim 5.

E.   Claim 8, "The game system as defined in claim 1, wherein a depth value in the image

information of the original image is set as the index number in the lookup table" is disclosed

supra by Ueda and Duluk for claim 5.

F.   Per dependent claims 26 and 44, these are directed to a computer usable program and a

method, respectively, for the system of dependent claim 8, and therefore are rejected to

dependent claim 8.

7.   Claims 6, 7, 24, 25, 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Bollman and Ueda as applied to claims 1, 27 and 45 above, and further in view of Schilling

et al., (US-PAT-NO 6,236,405B1), hereafter Schilling.

A.   Claim 6, "The game system as defined in claim 1, further comprising means which

blends: transformed color information obtained by setting the K-th color component of the color

information in the image information of the original image as the index number in the lookup

table; transformed color information obtained by setting the L-th color component of the color

information as the index number in the lookup table; and transformed color information

obtained by setting the M-th color component of the color information as the index number in the

lookup table" is disclosed supra for claim 1. However Bollman and Ueda do not appear to

disclose "further comprising means which blends: transformed color information obtained by

setting the K-th color component of the color information in the image information of the

original image as the index number in the lookup table; transformed color information obtained

by setting the L-th color component of the color information as the index number in the lookup

table; and transformed color information obtained by setting the M-th color component of the

color information as the index number in the lookup table", but Schilling does in col. 10, ln. 11 – col. 11, ln. 18. Wherein RGB corresponds to K, L and M^{th} components.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply texture mapping disclosed by Bollman and Ueda in combination with color information transformation via color look-up-table disclosed by Schilling, and motivated to combine the teachings because the color look-up-table via indices for R, G, B and I as revealed by Schilling.

B.   Claim 7, "The game system as defined in claim 1, wherein an alpha value corresponding to the image information of the original image is generated by the transformation of the image information of the original image" is disclosed supra for claim 6.

C.   Per dependent claims 24, 25, 42 and 43, these are directed to a computer usable program and a method, respectively, for the system of dependent claims 6 and 7, respectively, and therefore are rejected to dependent claims 6 and 7.

Response to Arguments

8.   Substance of the first Office Action, mail date 2/23/2005, used in the rejection is incorporated herein by reference.

Applicant's arguments filed 6/23/2005 have been fully considered but they are not persuasive.

Applicant's argument "wherein the virtual object being a polygon having a size equal to a size of a display screen or a size of a block obtained by dividing a display screen into blocks" does not correspond to "for the entire display screen". Since the virtual object polygon has a size

equal to a size of a display screen or a size of a block obtained by dividing a display screen into blocks, "a size of a display screen" corresponds to any display screen and not necessarily the size of the present display screen nor even the entire present display screen. This has not been claimed nor read into claims 1, 19 and 37.

For example, anyone may employ a 19 inch or 21 inch desktop display screen for viewing and displaying a virtual object polygon the entire size of a palm-held "GameBoy" display screen, thereby satisfying this element of the claim language.

If it is a necessary and sufficient condition for the virtual object polygon to be a size of an entire display screen of the present display screen, then this should be claimed.

Conclusion

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Responses

10.   Responses to this action should be mailed to: Commissioner of Patents and Trademarks,
Washington, D.C. 20231.

Inquiries

11.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-
7784.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the
organization where this application or proceeding is assigned is 703-872-9306.

On July 15, 2005, the Central FAX Number was change to **571-273-8300**. This new
Central FAX Number is the result of relocating the Central FAX server to the Office's
Alexandria, Virginia campus.

Most facsimile-transmitted patent application related correspondence is required to be
sent to the Central FAX Number. To give customers time to adjust to the new Central FAX
Number, faxes sent to the old number (703-872-9306) will be routed to the new number until
September 15, 2005. After September 15, 2005, the old number will no longer be in service and
571-273-8300 will be the only facsimile number recognized for "centralized delivery".

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregory F. Cunningham
Examiner
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9/13/2005

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